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WHAT IS CLAIMED IS:

1. A stator of AC generator for use in a vehicle comprising:

a cylindrical stator core in which a plurality of tooth portions are provided at equiangular intervals along the inner circumference of a cylindrical core back portion and a plurality of slot portions are each formed between adjacent tooth portions; and

a stator coil incorporated in said stator core, said stator coil having a group of coils constituted by predetermined numbers of turns of conductor wires and including a plurality of rectilinear portions and coil end portions interconnecting the end portions of adjacent rectilinear portions, said rectilinear portions being sequentially accommodated in the slot portions of every predetermined number of slots and said coil end portions being protruded axially outwardly from the end surface of said stator core;

wherein the cross-section of the major portion of said tooth portion intersecting at a right angle with axis of said stator core is formed in a rectangular form;

wherein at least one of the group of conductor wires constituting said rectilinear portion, which are accommodated within said slot portion, is formed into a polymorphic cross-section; and

wherein the ratio of the overall cross-sectional area of the group of conductor wires constituting said rectilinear portion accommodated within said slot portion relative to the cross-sectional area of said slot portion is not less than 80 %.

2. A stator of AC generator as set forth in Claim 1, wherein a notch portion is provided on the outer circumference of said stator core in parallel to the axis thereof.

3. A stator of AC generator as set forth in Claim 1, wherein said group of conductor wires constituting said coil end portion comprise a group of conductor wires of circular cross-section.

4. A stator of AC generator as set forth in Claim 1, wherein at least one of the group of conductor wires of polymorphic cross-section which constitute said rectilinear portion which are accommodated within said slot portion is directed such that the longitudinal axis of cross-section thereof extends in the radial direction of said stator core.

5. A stator of AC generator as set forth in Claim 1, wherein said group of conductor wires constituting said rectilinear portion which are accommodated within said slot portion comprises a group of conductor wires taking the form of a circular cross-section and a group of conductor wires taking the form of a polymorphic cross-section.

6. A stator of AC generator as set forth in Claim 5, wherein at least one of the group of conductor wires of polymorphic cross-section which constitute said rectilinear portion which are accommodated within said slot portion is directed such that the longitudinal axis of cross-section thereof

extends in the radial direction of said stator core.

7. A method of manufacturing a stator of AC generator for use in a vehicle comprising steps of:

forming, from a thin steel plate member, a plurality of belt-shaped members each having a predetermined number of tooth portions each which has a rectangular major portion formed at a predetermined interval;

integrally laminating said predetermined number of belt-shaped members to form a core member taking the form of a rectangular parallelepiped;

forming, by turning conductor wires a predetermined number of times, a group of planar coils in which a plurality of rectilinear portions and coil end portions for interconnecting the end portions of adjacent rectilinear portions are formed in a planar shape;

deforming at least one of the conductor wires constituting the rectilinear portions of said group of planar coils into a polymorphic cross-section;

inserting said rectilinear portions of said group of planar coils into said slot portions of said core member taking the form of a rectangular parallelepiped to incorporate said group of planar coils in said core member; and

bending said core member into which said group of planar coils are incorporated into a cylindrical form to bring both ends of said core member into abutment with each other and welding the abutting ends of said core member.

8. A method of manufacturing a stator of AC generator as set forth in Claim 6, further comprising a step of, after said group of planar coils are incorporated in said core member, spreading the tip end of the tooth portion of said stator core in the circumferential direction.